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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,343	08/26/2005	Wang Min	21108.0021U2	5753

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NEEDLE & ROSENBERG, P.C.
SUITE 1000
999 PEACHTREE STREET
ATLANTA, GA 30309-3915

EXAMINER	
PAK, YONG D	
ART UNIT	**PAPER NUMBER**
1652	
MAIL DATE	**DELIVERY MODE**
08/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,343	MIN ET AL.	
	Examiner	Art Unit	
	Yong D. Pak	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2006*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-64* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This application is a 371 of PCT/US03/22847.

Claims 1-64 are pending.

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-10, drawn to a mutant thioredoxins which is resistant to oxidizing effects of cytokines, reactive oxygen species or S-nitrosylation of a SH group by nitrous oxide.

Group II, claim(s) 11-14 and 17(in part), drawn to a method of decreasing inflammation by using the thioredoxins of Group I.

Group III, claim(s) 15 and 17(in part), drawn to a method of decreasing apoptosis by using the thioredoxins of Group I.

Group IV, claim(s) 16 and 17(in part), drawn to a method of decreasing insulin resistance by using the thioredoxins of Group I.

Group V, claim(s) 18-22, drawn to a method of treating atherosclerosis using the thioredoxins of Group I.

Group VI, claim(s) 23-28, drawn to a method of treating a subject with diabetes using the thioredoxins of Group I.

Group VII, claim(s) 29-34, drawn to a method of treating a subject with an apoptotic disease using the thioredoxins of Group I.

Group VIII, claim(s) 35-40, drawn to a method of treating a subject with cardiac dysfunction using the thioredoxins of Group I.

Group IX, claim(s) 41-48, drawn to a method of treating a subject with an angiogenesis-dependent disease using the thioredoxins of Group I.

Group X, claim(s) 49-53, drawn to a method of diagnosing an angiogenesis dependent disease using the thioredoxins of Group I.

Group XI, claim(s) 54-59, drawn to a method of screening a subject for a genetic risk of an angiogenesis dependent disease using the thioredoxins of Group I.

Group XII, claim(s) 60-64, drawn to a method of screening a subject for a genetic risk for an apoptotic disease using the thioredoxins of Group I.

The inventions listed as Groups I-XII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The technical feature linking Groups I-XII appears to be that they all relate to a mutant thioredoxins which is resistant to oxidizing effects of cytokines, reactive oxygen species or S-nitrosylation of a SH group by nitrous oxide.

However, Bishopric et al. (form PTO-1449) discloses a thioredoxin comprising a substitutuion at a cysteine residue at position 32 and 35. Examiner takes the position that the mutant thioredoxins of Bishopric et al. inherently possesses the same material structure and functional characteristics as the enzyme of the instant invention since (1) both enzymes have the same amino acid substitutions (at residues 32 and 35), (2) both enzymes function as thioredoxins with decreased oxidizing effects, and (3) the Office does not have facilities for examining and comparing applicant's enzyme with the enzyme of the prior art, the burden is on the applicant to show a novel or unobvious

difference between the claimed product and the product of the prior art (i.e., that the mutant thioredoxins of the prior art does not possess the same material structure and functional characteristics of the claimed thioredoxin). See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Figzgerald* et al., 205 USPQ 594.

Therefore, the technical feature linking the inventions of Groups I-XII does not constitute a special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art.

The special technical feature of Group I is a mutant thioredoxins which is resistant to oxidizing effects of cytokines, reactive oxygen species or S-nitrosylation of a SH group by nitrous oxide.

The special technical feature of Group II is a method of decreasing inflammation by using a thioredoxin.

The special technical feature of Group III is a method of decreasing apoptosis by using a thioredoxin.

The special technical feature of Group IV is a method of decreasing insulin resistance by using a thioredoxin.

The special technical feature of Group V is a method of treating atherosclerosis using a thioredoxin.

The special technical feature of Group VI is a method of treating a subject with diabetes using a thioredoxin.

The special technical feature of Group VII is a method of treating a subject with an apoptotic disease using a thioredoxin.

The special technical feature of Group VIII is a method of treating a subject with cardiac dysfunction using a thioredoxin.

The special technical feature of Group IX is a method of treating a subject with an angiogenesis-dependent disease using a thioredoxin.

The special technical feature of Group X is a method of diagnosing an angiogenesis dependent disease using a thioredoxin.

The special technical feature of Group XI is a method of screening a subject for a genetic risk of an angiogenesis dependent disease using a thioredoxin.

The special technical feature of Group XII is a method of screening a subject for a genetic risk for an apoptotic disease using a thioredoxin.

Further, the products of Groups II-XII do not share a technical feature for the following reasons. The methods of Groups II-XII do not share special technical features because the methods have different steps and effects.

Accordingly, Groups I-XII are not so linked by the same or a corresponding special technical feature as to form a single general inventive concept.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong Pak whose telephone number is 571-272-0935. The examiner can normally be reached 6:30 A.M. to 5:00 P.M. Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Yong D. Pak
Patent Examiner 1652